From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "Lahlum Ross" <ross_lahlum@msmail.wes.mot.com>
Subject: #020#
Message-ID: <9605022341.AA14518@kay.wes.mot.com>

Randy and list,

If you are experiencing intermod problems try a 10 - 20 dB attenuator between your antenna and receiver input. This may seem couterintuitive at first, but it will cut down intermod by 3X the attenuation of the tuned signal - so you end up being able to hear more stations. I keep a switchable decade attenuator on my antenna input, and it has helped in several situations.

73,
Ross KB9JJR

Hi R392 fanatics,

I too really like my R392 but as I have mentioned before on this net, beware of putative intermod GRUNGE.

My 392, carefully aligned with good tubes, is often un-useable due to broadcast station modulated hash spanning 100's of kHz on various bands (but almost always including 80M and 40M!). The best I can determine, despite the selective front end preselector, the RF stages and/or mixer are being overdriven by strong out-of-band signals.

I live almost line-of-site and about 5 airline miles from the largest nest of Portland's broadcast towers in the "west hills", but the kind of grunge I get on the 392 would make you think I was right under the towers.

Other receivers at the same QTH and with the same antenna(s) have no problem - these include R390, 390A, 51S-1, FRR-59, 2B, RBB and a variety of others previously tested but no longer extant in the shack.

So hopefully others eager to use a 392 will not be similarly afflicted.

Cheers,

=Randy=

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: Andy Howard WA4KCY <102452.362@CompuServe.COM>
Subject: Re: 4D32 Dates of Manufacture
Message-ID: <960503004227_102452.362_DHT111-1@CompuServe.COM>

>Today I received a new old stock 4D32 for my 32V3.   The big surprise to me
>was
>not the fast and friendly service I received from Fair Radio, it was that the
t>ube was manufactured in March 1979. I had expected a tube from the 1950s. I
>wonder what drove someone in the DoD to stock up on 4D32s in the late 70's?
>Admittedly, I don't know that much about military transmitters, but I am
unaware
>of any that used 4D32s. Do any of you know of any?

Seems to me that I remember a friend of mine who worked with the FAA at their installation at Hampton, Georgia (Atlanta Airport) telling me that they had transmitters that used them. Not sure if they were in any kind of radar or not but considering the frequency of radar I would doubt it. Another fellow that was in charge of Delta Airlines electronics used to have lots of them for sale at hamfests. They apparently were pulls from Delta equipment. I don't believe that I have ever seen a 4D32 made by anyone other than Raytheon.

I have a 32V3 and HT20 that use the tube. At one time it was considered to be rare but I have seen lots of them for sale. There was a modification to the Viking 1 using an 829B in place of the 4D32 in QST way back when.

Regards,

Andy, WA4KCY
AMI #9

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: Chuck Grandgent <k1om@world.std.com>
Subject: Amplidyne ?
Message-ID: <199605031617.AA16989@world.std.com>

Anyone remember an apparently short-lived company from the early to mid '60's called "Amplidyne" ?

I had a 2M transmitter from this company.
I got it from a neighbor who claimed he "won it in a raffle" maybe around '66, give or take a couple years.

The thing did AM + CW, around 100 watts, I forget what the finals were.

The wiring in this thing was unlike anything I'd seen up to that point in that it was GORGEOUS. Looked like way too good for commercial, looked more like expensive military. All beautiful components and the wiring was way beyond average. My conjecture at the time was no company could make any money selling anything that apparently cost so much to build.

I used it for some 2M CW meteor scatter, etc., but sold it at some point.

Does anyone remember this company and know anything about it ?

-Chuck Grandgent, K1OM, Maynard, Mass.
k1om@world.std.com   http://world.std.com/~k1om

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: bill@skeeter.frco.com (William Hawkins)
Subject: Re: Amplidyne ?
Message-ID: <9605031702.AA00764@skeeter.frco.com>

Interesting. I thought we were going to get into a heavy metal amplifier of the rotary kind, used in the big servomechanisms that rotate gun turrets and other things. Strange choice of name for a transmitter, but then, who understands marketing guys?

Bill Hawkins

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "Cathy Elizabeth D'Entremont" <cdent@tenet.edu>
Subject: BA NAB Followup
Message-ID: <Pine.OSF.3.91.960502194441.29339A-100000@abernathy.tenet.edu>

Well, Vegas was...well, Vegas. I got back to Houston (at 5AM!) to find family sick with the same crud that kept my boss in bed most of NAB (and he's from Atlanta, so there was no chance of them catching it from each other!). Anyhow, it got passed on to me and I've been playing catch-up since then, so this is a bit late (but better than never?).

I had the stroke of good fortune to just coincidentally run into Ron, K9IKZ at the ARRL booth in the hallway of the Convention Center as he was sharing some photos of his shack and QTH with the folks in the booth. We made plans to meet later that evening, as discussed here, at the PepperMill after the NAB Ham Reception which was being held over at the

Hilton.

The NAB reception was interesting; my first year to attend (since being re-licensed) and it drew a pretty good crowd...probably 800-900 or so. Eimac was one of the co-sponsors and had an interesting give-away. (Here comes the BA connection for those who have been waiting!). In their booth over in the main hall, they had a 4-1000 that was filled with M & M's!!! Guess the number of M & M's inside the tube and closest guess wins a 3-500Z! Well, I was way the hell off (even after qualifying that they were plain and not peanut!). For the inquiring minds amongst you, I beleive it was something like 1146.

Anyhow, a good time was had by all...many pairs of 811A's were given out as door-prizes (from Svetlana) as well as other, more modern (ceramic) fire-bottles from Eimac and other folks (Ron was fortunate enough to pick up a pair of the 811's) as well as some other gear, books, etc.

No one seemed to pick up on my red Grateful Dead gimme-cap at the reception; so Ron, his XYL and I retired (if that's the right word for hoofing it over from the Hilton, hi!) to the PepperMill to catch up with any of the other BA crowd over yonder. Well, the result of the First Annual BA/NAB get-together is offically in and...the meeting consisted of Ron Steinberg, K9IKZ; his charming XYL and KC5RNX (yrs truly!). OK, guys, we'll try to do better next year, I promise (even if I have to wear something more visible than a fire-engine red baseball cap, hi! Perhaps an 390A balanced on top ala Carmen Miranda, ouch!).

We all had fun anyway...it was good to get the chance to finally meet up with some fellow BA-folk in person and I do look forward to the chance to do so again soon. Sorry Jack, I won't be able to make Baton Rouge, but if Ray Mack has come up with any better ideas for getting folks together at Hamcon in Arlington in June, I'm all ears (and all thumbs at the key, hi!). If any of you get the chance to meet up with Ron; get him to show you his pictures...I haven't seen that much Cedar Rapids iron in one spot since I left Bud Whitney's garage in Wimberly, hi!

73, Gerald D'Entremont KC5RNX (ex-WA5TVM)
cdent@tenet.edu

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: RhyneK@aol.com
Subject: Re: Bristol Spline in Hallicrafters
Message-ID: <960503102332_286304306@emout12.mail.aol.com>

Bristol Spline set screws were very common on the Hallicrafters in the 40s 50s and 60s.

de
KA1CX

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: kilgore@dev.tivoli.com (Jeff Kilgore)
Subject: Bristol wrench set availability
Message-ID: <9605021814.AA06826@wichita.tivoli.com>

Altex Electronics in Austin, TX has the Xcelite Bristol wrench sets
in stock. I picked up a set at lunch today, and there were five sets
left at that time. The Xcelite # is 99PS-60, and includes the handle,
an extension, and 9 sizes of Bristol wrench.

I need a 7-pin minature tube socket. Anyone have one they would be
willing to sell?

73,
Jeff, KC1MK

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "James C. Garland" <garland@MPS.OHIO-STATE.EDU>
Subject: Re: Bristol wrench set availability
Message-ID: <01I48FH1P3Z48X1EHQ@MPS.OHIO-STATE.EDU>

At 01:16 PM 5/2/96 -0500, you wrote:
>Altex Electronics in Austin, TX has the Xcelite Bristol wrench sets
>in stock. I picked up a set at lunch today, and there were five sets
>left at that time. The Xcelite # is 99PS-60, and includes the handle,
>an extension, and 9 sizes of Bristol wrench.
>
>I need a 7-pin minature tube socket. Anyone have one they would be
>willing to sell?
>
>73,
>Jeff, KC1MK
>

By coincidence I ordered a Bristol set from Contact East, at (508) 682-2000.
They have the Xcelite 99PS-60 in stock for $38.95, and their part number is
116-184. They accept Visa/MC.

Jim W8ZR

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "Grant Youngman" <nq5t@gte.net>
Subject: Cleaning House
Message-ID: <199605022001.PAA25901@uro.theporch.com>

STUFF FOR SALE

I have decided that my small BA "museum" needs to be thinned down to the gear I use rather than the gear I look at. So-o-o-o-o, the following items are looking for a good home. My preference is to find "user" homes for this nice stuff, rather than just another "museum". All of the equipment is in GOOD WORKING CONDITION and is begging to be USED, has been cleaned up, lubricated, electrically rehabbed where necessary, aligned, checked, etc. None of it looks NIB, but all of it is very nice. With manual copies. Prices are somewhat negotiable, but not very -- especially if a piece is to be shipped. You can see pictures of these items at http://home1.gte.net/nq5t/index.htm.

HQ-170AC -- $250 pickup, $290 double boxed, shipped

Extremely nice condition. Unchecked on 6 meters, Clock/meter faces are very very slightly yellowed. A little spotting on the chassis - minor only. No cracked/jammed coil slugs.

HQ-180AC -- $325 pickup, $365 double boxed, shipped

Late production model (plug-in clock). Clean and pretty inside and out -- except, some idiot removed about 2" of paint from the top of the panel trim ring right above the clock. The fellow that sold it to me a couple of years ago put his price stickers over the flaw. Not nice. Other than this, the radio is superb looking, with no yellowing of the clock or meter faces, and works flawlessly. No cracked/jammed tuning slugs.

HRO-60T -- $400 pickup. Maybe ship, but its large and heavy.

Re-C'ed, re-R'ed where things were out of spec or leaky. So under the hood there's some modern stuff. Standard 4 coil set with wooden box. Some scuffs and scratches (nothing down to the metal) on the lid and some of the corners. But NOTHING that would classify as a significant flaw. The chassis shows its age, but no rusty splotches. Overall, a very nice looking HRO-60, that plays well.

Viking II/VFO-122/Matchbox -- package only, $225 pickup. Shipping iffy.

Transmiiter is in very nice condition, but not perfect. A few scratches on the transmitter panel (cloaked in makeup) and some minor chips in the cabinet paint. Overall, it still looks better than most. Under the covers it is superb. VFO panel is very good, some missing paint on the case. The matchbox (275 watter) does not have the SWR meter, and the paint is in fair (panel) to poor (case) condition -- good inside, where it counts. Electrically, this equipment is excellent. Cleaned, restored, ready to put back on the air. The transmitter has the KT2L audio modification (see ER#9) -- reduced distortion, wider frequency response, beefier driver stage and driver transformer, and regulation of the modulator screens.

Miscellaneous

Central Electronics Sideband Slicer B -- Very nice, works well. $90 shipped.

Central Electronics 20A -- unchecked, unused, unrestored. Physically average, some paint chips, but complete. $45 shipped, negotiable.

Grant/NQ5T

Grant Youngman / NQ5T
nq5t@gte.net
HTTP://home1.gte.net/nq5t/index.htm

Beautiful downtown Double Oak, TX

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: "Ray L. Mote" <rmote@rain.org>
Subject: FREE: Teletype Model 19 manual set
Message-ID: <Pine.SUN.3.91.960503095117.28708A-100000@coyote.rain.org>

Includes Model 15 page printer, keyboard, etc. Reimburse for shipping costs, please!

73.....Ray Mote, W6RIC <rmote@rain.org> Oxnard, CA

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: Jeffrey Herman <jherman@hawaii.edu>
Subject: From .swap / please contact them, not me / Jeff KH2PZ
Message-ID: <Pine.SV4.3.91.960503061108.2650A-100000@uhunix5>

>From ac6v@ix.netcom.com Thu May 2 14:38:31 HST 1996
For manuals for older gear:
DSM DIVERSIFIED, 909 WALNUT ST., ERIE, PA 16502-1374

Nicely done with schematics and reasonable.

>From mdibella@bu.edu Thu May 2 14:38:55 HST 1996
knight T-60 with manual in almost mint condition (close as it gets)
theres a ~1*2 mm paint chip in a corner--   60$
V-44 VFO (knight) good condition, with manual, needs plastic indicator $25
knight P-2 SWR/power meter. needs a little paint-- 25$ shipped
HALL SX-99 with unique paint job.... 60$
TEC 502A scope   75$/offer

>From edandsusan@aol.com Thu May 2 14:40:21 HST 1996
EMC portable tube tester, with charts. Great condition, in orig box,
$55.00 incl freight USA/48.

>From ns1z@agate.net Thu May 2 14:45:56 HST 1996
This is one heavy boat anchor! 120 lbs or real steel. Uses 4-400A
tubes in final as well as an assortment of tubes in the screen etc
supplies. The unit is in good to very good condition and would appear
to be easily restored to Collector quality. Asking $600 shipped in

>From wega.ppp@pop.loop.com Thu May 2 19:15:24 HST 1996
I have a mint condition SB-201 am covering 80-15 meters using 2 572B
tubes. No scratchs and works perfectly putting out 500-700 watts SSB.
Have manual with amp. Sell for $300.

>From mccrk@aol.com Fri May 3 06:04:20 HST 1996
I need a manual for a National NC-183 (not the 183D but the original
183).Does anybody know where I can get one.
Also, I would like a matching speaker for an NC-300.

>From jim@exis.net Fri May 3 06:04:32 HST 1996
I am seeking a nice SX115 to go with my HT-32B and HT-33B. If you have an

>From marc.lurie@pixie.co.za Fri May 3 06:05:13 HST 1996
I HAVE SEVERAL BOXES OF PORCELAIN EGG INSULATORS AVAILABLE AT A COST PER
BOX OF 100 INSULATORS FOR US$75.00 PLUS US$25.00 POSTAGE.
THE INSULATORS AR 4cm (1.57in) LONG AND 3cm (1.18in) WIDE, AND ARE MADE
from smooth white GLAZED PORCELAIN.

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: "Ray L. Mote" <rmote@rain.org>
Subject: FS: CV-157 SSB converter manual
Message-ID: <Pine.SUN.3.91.960503095242.28708B-100000@coyote.rain.org>

Picked up at TRW swap last weekend for $10:

TM 11-266, Single Sideband Converter CV-157/URR (Field Maintenance)
TM 11-649, Radio Receiving Sets AN/FRR-40 and AN/FRR-41 (that's the CV-157 used with the R-390 (non-"A").

You can have 'em for what I paid, plus postage. Famous last words: "I'll never run across a CV-157, so might as well get rid of it".

73.....Ray Mote, W6RIC <rmote@rain.org> Oxnard, CA

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: Karan Lee Carruth <klccarru@tenet.edu>
Subject: FS: Old radio
Message-ID: <Pine.OSF.3.91.960502144548.15279A-100000@alpha.tenet.edu>

I have a radio that has been sitting in my garage for some time that I would like to sell. It is in a wooden box approximately 14" wide, 8 1/2" high and 9" deep. The top is hinged at the back and opens upward.

Inside is a single RCA Radiotron WX-12, two variable capacitors, a tapped coil, two 1 1/2 Volt telephone type batteries, one "Silvertone" 22 1/2 Volt battery and some miscellaneous components.

The 1 1/2 Volt batteries are "fully warranted" by Shapleigh Hardware Co. in St. Louis (established 1843). The battery is also marked "for automobiles, gas and gasoline engines, motor boats and cycles." They also include "directions for using" with wiring diagrams for connecting batteries.

The 22 1/2 Volt battery has a tag marked "Sears Roebuck and Co. Retail Store" with a price of 79 cents.

The front of the radio has two large knobs with calibrated skirts, one for each capacitor. There is a switch for the taps on the coil that has the contacts protruding through the front panel and an external wiper arm on the knob. Another knob controls a wire wound pot and another appears to be the power switch. The front panel appears to be bakelite. One of the large knobs has two chips on the skirt and there appear to be at least four spurious holes in the front panel.

The radio is dirty outside and fairly clean on the inside (mostly dust). The wood on the cabinet is good and the finish might be okay of it were oiled.

If anyone is interested in this radio, please E-Mail me with an offer or a request for more information. I don't know what eles I can tell you but someone who knows more about these things than me might be able to ask intelligent questions.

Lenox Carruth, WA5OVG
klccarru@tenet.edu

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: jmiller@teleteam.com (Jay H. Miller)
Subject: RE: FS:BIRD 43 10KH1 ELEMENT
Message-ID: <v01510101adae628e0cbe@[205.198.110.22]>

If Joe's 10KW is not sturdy enough for your *California Kilowatt* rig, I
have a 25KW and a 50KW slug for the Bird system.

Serious inquiries invited----- !!!

```
************************* ############################ ********************
Jay H. Miller, KK5IM            Dallas, Texas
The Pocket Guide to Collins Amateur Radio Equipment
jmiller@teleteam.com
************************* ############################ ********************
```

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Fuse rebuilding
Message-ID: <9605031655.AA102172@csemail.cropsci.ncsu.edu>

Whilst attempting to resurrect a fine old ancient mariner, I ran out of
HV fuses (the originals had rotted away in storage before I got the beast).
My last spare is used up and I get deep willies trying to just bypass them.

Thinking that somewhere in the deep dark reaches of the past I had seen
a table of fusing currents for plain copper wire, I looked and looked and
searched high and low and was unable to find that table. By sheer chance,
last night, while going through a bunch of papers, I found the long lost
treasure. Now I am able to reconstruct my HV fuses. So that others
may not have to scratch their heads like I did, and hopefully so others
may contribute to the table and make it available on the archives I
will type in what I have.

Fusing Effects of Current on Copper Wire

(Note --- the original source for this is long lost, but it may have been in an old 50's or earlier Handbook of Chemistry and Physics.)

B&S Guage	Fusing Current in Copper Wire
10	333
12	235
14	166
16	117
18	83
20	58
22	41
24	29
26	21
28	15
30	10
32	7.3
34	5.1
36	3.6
37	3.1
38	2.5
39	2.2
40	1.8

Maybe someone else has other values for other metals that might be usable. Perhaps aluminum wire might also be good in a pinch, if anyone has tables of fusiblity for aluminum. For most purposes, it is probably best to stick with copper.

We checked for makers of HV fuses, and no-one makes them anymore that we can find. Also, cartridge fuses in the large cartridges are no longer being made. But, such fuses can be rebuilt if you can find the fuse links or the right size of fusible wire. Currently I am using individual strands of stranded copper wire (No. 40 or smaller) on some of my HV fuses, and it seems to work OK. Handling that size wire is sometimes a problem to prevent breakage, but one has to make do these days with what one can find, just like in the early days.

Good Luck

73/ZUT DE NA4G/Bob UP

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: bill@skeeter.frco.com (William Hawkins)
Subject: Re: Fuse rebuilding
Message-ID: <9605031713.AA00792@skeeter.frco.com>

Um, there's more to it than just melting the wire. The arc has to be controlled - especially at high voltage. Are you talking about the cartridges that have end caps that screw on to hold the wire _and_ are filled with powder?

There's also 'clearing time' and overcurrent characteristics, that usually dictate some alloy - not copper. That's not as important as having _something_ for a fuse, but copper can allow pretty high peak fault current. I'd be sure that there were real fuses in the connection to the power company, on the primary side of the HV transformer.

Bill Hawkins

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: Fuse rebuilding
Message-ID: <9605031759.AA102336@csemail.cropsci.ncsu.edu>

>
> Um, there's more to it than just melting the wire. The arc has to be
> controlled - especially at high voltage. Are you talking about the
> cartridges that have end caps that screw on to hold the wire _and_
> are filled with powder?

I am talking about the paper fuze cartridges that are used in things like the BC-191 and BC-375, TCM, TDB, and many other ancient transmitters for which replacements are non-existant. These are the 2 or 4 inch long tubes with brass end caps. They are use in the B+ lines and in high current filament lines, etc. They are not used in primary lines.

I have to disagree slightly in that there is nothing more to it than letting the fuse link blow (except for containing the fire as the wire fuses). All that the link has to do is open at a reasonable approximation to the desired current. Of course, if one is constructing one from scratch, then it should be properly insulated and properly fireproofed so you don't catch the rig or the house afire. That is obvious.

> There's also 'clearing time' and overcurrent characteristics, that
> usually dictate some alloy - not copper. That's not as important as
> having _something_ for a fuse, but copper can allow pretty high peak
> fault current. I'd be sure that there were real fuses in the connection
> to the power company, on the primary side of the HV transformer.

We are talking about secondary fusings here, where non-existant fuse cartridges or links exist anymore. I would not suggest anyone do this in the primary side --- use normal fuses for that, replacing holders if necessary. But, have you tried to find a 2000 volt 250ma fuse, lately? These you may have to rebuild.

What I do is carefully remove the end caps from the paper or bakelite tube and then install replacement copper wire fuse link. It has always worked fine for me. If the fuse link is within, 200% of original value, that will usually work just fine in normal kinds of BA applications where no currently available replacements exist. Usually, I choose one step less in fusing current just to be on the safer side. That is usually 40 or smaller wire sizes.

The only other alternative that I can think of, in a practical sense, would be to wire up pigtails on 250v fuses and use those as replacement insert fuse links, in these cartridges. I am not sure these would work any better.

If anyone has any other insights into this, kindly let me know, OK? I have been plagued with this non-existent fuse link problem for some 20 years now, and the fusible copper links are the only thing that I can find that suitably replaces originals, long since unavailable.

> Bill Hawkins

Thanks for the concerns, Bill.

73/ZUT DE NA4G/Bob

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: pbock@melpar.esys.com (Paul H. Bock)
Subject: Re: Fuse rebuilding
Message-ID: <9605031739.AA11865@syseng1.se.melpar.esys.com>

Boy, you guys would love how they handled fuses in Morocco when I lived there.....I was staying in the hotel in Kenitra (nee Port Lautey) and the circuit serving my room went dead. I happened upon the Duty Electrician in the hall changing the fuse - well, actually, he removed the cover from a Large Porcelin Box which looked like it had been built about 1910, and pulled out a porcelin block with heavy brass prongs on either end, and proceeded to carefully wind several turns of what looked like ordinary solder around the two prongs to "connect" them, then plugged the sucker back into the Large Porcelin Box and voila! - my room again had electricity.

I witnessed this several times during the week I stayed there.

And when I moved into an apartment in town after my hotel stay, I had to deal with electrical wiring which was (I swear this is true) no larger than #20 feeding the room outlets.

Good thing the buildings were 100% masonry (nothing to burn).

73,

Paul, K4MSG

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: John Kolb <jlkolb@cts.com>
Subject: Re: Fuse rebuilding
Message-ID: <Pine.SCO.3.91.960503112809.3717A-100000@sd.cts.com>

On Fri, 3 May 1996 rdkeys@csemail.cropsci.ncsu.edu wrote:

> Fusing Effects of Current on Copper Wire
>
> | B&S Guage | Fusing Current in Copper Wire |
> |---|---|
> | 10 | 333 |

Continuing:

9	396
8	472

7	561
6	668

A table in ITT Reference Data for Radio Engineers gives fusing currents for 40 to 6 gauge wire for copper, aluminum, german silver, iron, and tin.

I happen to have the 5th edition of this book available for sale or trade.

John Kolb KK6IL jlkolb@cts.com

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: Fuse rebuilding/funzies
Message-ID: <9605031839.AA102443@csemail.cropsci.ncsu.edu>

>
> Boy, you guys would love how they handled fuses in Morocco when I lived there.....I was staying in the hotel in Kenitra (nee Port Lautey) and the circuit serving my room went dead. I happened upon the Duty Electrician in the hall changing the fuse - well, actually, he removed the cover from a Large Porcelin Box which looked like it had been built about 1910, and pulled out a porcelin block with heavy brass prongs on either end, and proceeded to carefully wind several turns of what looked like ordinary solder around the two prongs to "connect" them, then plugged the sucker back into the Large Porcelin Box and voila! - my room again had electricity.
>
> 73,
> Paul, K4MSG

EEK!

Paul.... from the practical point, I wonder if anyone has done any experimentation (at the ham level or in commercial or laboratory settings, since it seems we need to have that kind of authority), on using this ``solder'' alloy sort of fusible link. Is there any way to backtrack and find out what exactly was used as that link?

I have seen lots of spools of some sort of hairlike extremely fine solder around here lately from a company that went belly up. It looks like about no. 35 or smaller solder wire. The only problem I would have with that approach is that the solder contains resin which will burn, hence would not be suited to use as good a fusible link as would a plain metal.

Anyone else seen these early type fusible link systems around?

Since my hind quarters ride on these kinds of fuses, I do have a vested interest in making sure such things really do work. I know my copper links work, since I have inadvertently blown one or two over the years.

Can anyone cite some literature on fuses, early or modern, preferrably good sound technical material? The earliest thing I can find relating to radio is from Loomis (1925) who recommends plate circuit fusing on tubes greater than 5 watts output power. ``Appropriate fuses may be purchased, or they may be made from tinfoil. The tinfoil melts easily if an overload of current passes over it. The right size may be determined by experimentation. If a memorandum of the size of the strip is preserved, it is thereafter only necessary to cut a new fuse as needed. The tinfoil is easier to handle if pasted to bristleboard. Contact is made with small clips." She also references earlier that ``The cartridge fuse consists of a piece of wire, or a flat strip of an alloy of lead and tin, imbedded in a misture of asbestos and chalk, and held in a fiber cartridge shaped container, having copper or brass caps at each end which fit into copper clips, thus making contact with the circuit.''
In this case she references the use of a wire as opposed to an alloy strip as a fusible material. Other classic writers, such as Ghirardi or Bucher don't even mention fuses at all.

As No. 5 Alive used to say, ...``Need input!''

Bob/NA4G

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "Lahlum Ross" <ross_lahlum@msmail.wes.mot.com>
Subject: FW: glowing meters
Message-ID: <9605031559.AA20193@kay.wes.mot.com>

Interesting. I've noticed that my R390A meters don't glow very brightly at all unless I expose them to photons from a flashlight for a few seconds. I checked them with a Geiger counter and they are emitting radiation, although one is stronger than the other. The stronger one does glow brighter.

Anybody know what the half-life of radium is? Are these meters in fact painted with radium? Is there something else besides radium in the paint that absorbs

& then reradiates light? (Forgot most of my Modern Physics.)

Ross KB9JJR

 The topic of R-390A meters being "hot" in the radioactive sense made me wonder if they might flourese in the presence of ultra-violet.Sure enough...
<snip>
73 Jay KE6PPF
--

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: Karan Lee Carruth <klccarru@tenet.edu>
Subject: Re: FW: glowing meters
Message-ID: <Pine.OSF.3.91.960503130433.9300A-100000@alpha.tenet.edu>

Lahlum asked about the half-life of radium. The longest-lived isotope (Ra 226) has a half-life of 1622 years so I don't think that the decay of Radium is the reason that instruments no longer glow. I believe that the phosphor decays or is used up although I don't know what the physical mechanism is. Materials fluoresce when electrons are knocked into higher energy orbits by photons, gamma rays or other "particles." Such a process does not seem to be one that would "wear out" so to speak. Perhaps some physicist will give us the proper answer.

FYI, most aircraft instruments of the 1940s, 1950s and 1960s were radioactive and would glow by themselves. However, most aircraft also had UV lights which made the instruments glow brighter and which could be adjusted. My O-1E originally had two of those fluorescent lamps, one at each side of the cockpit. The aircraft was manufactured in 1957 and the instruments, although radioactive, no longer glow either by themselves or with the UV lamps. They would glow very faintly with the UV but not enough to be useful. I changed the lamps to regular 24 Volt filament bulbs with red filters.

The conclusion is, do not assume that meters, aircraft instruments, markings, etc. are not radioactive just because they don't glow. The only true test is with a radiation detector. Many 1950s and 1960s military radios had meters with radioactive dials even though none of the other markings were radioactive. Strange when you think about it. How could you tune the radio in the dark? Who sat around in the dark staring at the meters? Was it that much trouble to put a light in the meters as they usually did in the dial?

Anyway, that is the reason why you see so much military stuff missing meters. The government, in their unending effort to protect us from ourselves, removed anything radioactive from much of their surplus equipment. Somewhere there must be a huge radioactive pile of meters!!!

Some physicist please tell us why the phosphor goes bad on these things.

Lenox Carruth, WA5OVG
klccarru@tenet.edu

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: Jay Coward <jayc@hpmsd2.sj.hp.com>
Subject: glowing meters
Message-ID: <9605031541.AA18918@hpmsd2.sj.hp.com>

Greetings Anchorites,
The topic of R-390A meters being "hot" in the radioactive sense made me wonder if they might flourese in the presence of ultra-violet.Sure enough, with a small u-v lamp held in proximity to the meters on my R-390A in a darkened room,they glowed very bright green.No other markings on the panel had this effect.This led me to examine other mil. sets and I found that the meter on the RT-68 glowed weakly with no persistence,nothing glowed on ART-13,ARB, ARC-5,GRC-9,BC-348,but the neatest one turned out to be the meter on the ARC-2.This one has the scale and numerals glowing orange and the needle glowing green!My navigator's clock also glows orange. So it seems that some "real radios" glow in the dark in more ways than one.
73 Jay KE6PPF
--

```
----------------------------------------------------------------------------

                 NOTIFY PILOT BEFORE UNLOCKING AUTOTUNE
----------------------------------------------------------------------------

  HEWLETT    John Jay Coward         39201 Cherry Street    MS NK10
  PACKARD    jayc@hpmsd2.sj.hp.com   Newark, California       94560
  Communications Components Division 510-505-5614  Fax 510-505-5560
----------------------------------------------------------------------------
```

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: robert fowle <hammarlund@voyager.net>
Subject: Golden Eagle D-104 'SOLD'
Message-ID: <199605022354.TAA21440@vixa.voyager.net>

as the subject says, the golden eagle D-104 is sold.

thanks to all...

==]-[->
Robert Fowle   KC8DBC
The HAMMARLUND Historian
Ph. voice or fax 517-789-6721
1215 Winifred
Jackson, Mich. 49202-1946
E-mail at: hammarlund@vixa.voyager.net
                 HAMMARLUND LITERATURE WANTED
WANTED: MANUALS FOR ANY MAKE RADIO EQUIPMENT
==]-[->

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "Mark S. Hovda" <75301.3141@CompuServe.COM>
Subject: Government Surplus Tubes
Message-ID: <960502233003_75301.3141_GHI51-1@CompuServe.COM>

Today I received a new old stock 4D32 for my 32V3.   The big surprise to me was not the fast and friendly service I received from Fair Radio, it was that the tube was manufactured in March 1979. I had expected a tube from the 1950s. I wonder what drove someone in the DoD to stock up on 4D32s in the late 70's? Admittedly, I don't know that much about military transmitters, but I am unaware of any that used 4D32s. Do any of you know of any?

Mark Hovda
N0JWI

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Lamb bulb resistances for experimental use
Message-ID: <9605031728.AA102247@csemail.cropsci.ncsu.edu>

Another treasure surfaces from the deep dark recesses and bilges.

TABLE OF TUNGSTEN LAMP RESISTANCE VALUES

(Note: the original source for this is long lost, but it has ``Popular Science Monthly Shop Data'' written on the xerox that it came from.)

Lamp Wattage	Approximate Resistance in Ohms				
	Cold	25%	50%	75%	100%
6	193	1390	1837	2127	2400
10	113	822	1094	1293	1440
15	73	540	722	856	960
25	42	318	427	509	576
40	25	173	253	299	360
50	21	141	206	241	288
60	17	117	171	201	240
75	12	98	136	154	192
100	10	77	104	116	144
150	7	48	69	84	96
200	5	36	51	62	75

Note: Percentages are in percentages of 120vac applied across the bulb while it is used as a series resistor.

Looking at the table, one can easily see why a 200 watt lamp makes such a good dummy load for the average coax fed rig --- it is within the 30-100 ohm range at all output powers. Also, at MF and HF, the inductance and series effects of using a coil in a filament as a resistor are essentially nil. For open wire feeders, choose a power and resistance rating for your rig and open wire impedance 300-600 ohms.

Using such a table, one can easily use lamp resistances as series current limiters for battery charging, etc. In my chargers, they drop about 24 volts to a 6 or 12 volt battery, so I use the 25% column, and it works quite well. Also, series lamps make great bleeder loads when run at about 25 percent power or so, and it will stabilize your power supplies on OT rigs, quite well. 4 watt christmas tree lamps or 7.5 watt night lamps work quite well in this vein, for light loading and 10 or 15 watters work well for heavier loading. Use one bulb for every 60 volts of HV to bleed (Yeah, I know that is a lot of lamps, but they sure glow nicely and keep the shack warm in winter!).

The basics of the use of lamp bulb resistances are well covered in two QST articles, suitable for all amateur, and especially all boatanchorite and glowbuggite uses.

1. Redgrave, D.C., KA1NA. The light-bulb resistor. QST, March, 1934, pages 36-37.

2. Hamburger, F., Jr., W3AMM. The incandescent lamp as a resistor. QST, July, 1934, page 31.

Good Luck

73/ZUT DE NA4G/Bob UP

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "F r6fqHo!ht" <75121.100@CompuServe.COM>
Subject: Miller Company
Message-ID: <960503052912_75121.100_FHI34-1@CompuServe.COM>

I have some J. W. Miller radio coils and I would like to find what the electrical specifications are. Does anyone have a catalog which lists their part number and cross to the electrical specs? I would sure like to get a copy.

One for instance is marked 16-PH6, Top tuned J-tran, 262 kc output IF, P.C. W/diode filter. What is it? What uses 262 kc as an IF? OK I know what "top tuned" means, so leave that out<g> Another can is m,arked 52-63 and under it is 1187 (date code?) If 1187 is the date code, the second can is not a Miller, since it too new, correct? I also have a MIller choke Part number 610 so it would be nice to know how much current and how many mh.

Regards from Honolulu, Raymond Cote
75121.100@compuserve.com

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: Peter Ferrand <petef@sprynet.com>
Subject: Re: Pacemaker Sideband Suppression Query
Message-ID: <2.2.32.19960502202055.006a7eb4@sprynet.com>

At 09:52 AM 5/2/96 -0500, Bill Sorsby wrote:

>In playing around with the now working Pacemaker I find that I'm unable to
>get "good" alternate sideband suppression. Supression vs frequency is as
>follows:
>
> 500 Hz   25 dB
> 1 kHz   25 dB

> 1.5 kHz   35 dB

[etc.]

Well, Bill, that's a lot better than I was able to coax out of the one I had about 16 years ago.
I don't remember it changing with frequency, but it did change from day to day, or hour to hour.

The point is that the Pacemaker's design is really quite primitive, and at least mine had a number of instabilities and gotchas in general, so I was never happy with it, and mostly because of basic design choices.

The HT-37 on the other hand, was a much better design, and used the canned (literally) B&W phase shift filter that's the key to the phasing suppression issue.

In any of these early designs, the engineering tradeoff of audio phase shift circuits was that it is not possible to provide a linear phase shift over a broad range of frequencies.

Perhaps the Johnson was designed to have a higher suppression on the higher frequencies for QRM reasons, perhaps it just came out that way, or perhaps your unit has aged to emphasize those frequencies. I don't remember how mine was, but it was not linear at all thru audio spectrum, whereas the HT-37 or my CE units were far better.

Some of the original SSB circuits as published in QST, I've been told, had really minimal sideband supression, except over a very narrow band of frequencies. I think they served more as a "proof of concept" than a refined design.

I recall seeing, possibly in Ham Radio magazine, how modern circuit analysis could be used to design a much better filter than what the 1950's engineers could do.

73,
-Pete
WB2QLL
petef@sprynet.com

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "David L. Thompson" <thompson@mindspring.com>
Subject: Re: Pacemaker Sideband Suppression Query
Message-ID: <199605022331.TAA00644@borg.mindspring.com>

>>In playing around with the now working Pacemaker I find that I'm unable to
>>get "good" alternate sideband suppression. Supression vs frequency is as
>>follows:
>>
>> 500 Hz   25 dB
>> 1 kHz   25 dB
>> 1.5 kHz   35 dB
>[etc.]
>
>Well, Bill, that's a lot better than I was able to coax out of the one I had
>about 16 years ago.

One reason that The Pacemeker was dropped was that the "alternate" sideband suppression was below par.   Several blamed the phasing method and used this as a reason to only use filter SSB rigs.   Central Electronics and B&W also used phasing and seemed to get much better suppression.

Using the B&W phasing unit did not mean that the suppression problems were eliminated. The SB-10 used the B&W unit and never did get good suppression. My Collins friends kept telling me that I was awful close double sideband. We worked and worked and only got 20 to 25DB suppression. We did install the 88mh audio filter that Heath suggested and with the D-104 had killer audio...flat response was not a word DXers used!   I use "we" because the station was shared between my dad and myself.

I have both the B&W 51SB and the SB-10 in my "oldies" shack. The measured difference in sideband suppression is just over 20DB in favor of the B&W. I have not attempted to do anything to either unit but set for max suppression.   Both use the B&W 350 (looks like a gray metal tube) unit. There is no difference in swapping them either.

Dave K4JRB

>I don't remember it changing with frequency, but it did change from day to
>day, or hour to hour.
>
>The point is that the Pacemaker's design is really quite primitive, and at
>least mine had a number of instabilities and gotchas in general, so I was
>never happy with it, and mostly because of basic design choices.
>
>The HT-37 on the other hand, was a much better design, and used the canned
>(literally) B&W phase shift filter that's the key to the phasing suppression
>issue.
>
>In any of these early designs, the engineering tradeoff of audio phase shift

>circuits was that it is not possible to provide a linear phase shift over a
>broad range of frequencies.
>
>Perhaps the Johnson was designed to have a higher suppression on the higher
>frequencies for QRM reasons, perhaps it just came out that way, or perhaps
>your unit has aged to emphasize those frequencies. I don't remember how mine
>was, but it was not linear at all thru audio spectrum, whereas the HT-37 or
>my CE units were far better.
>
>Some of the original SSB circuits as published in QST, I've been told, had
>really minimal sideband supression, except over a very narrow band of
>frequencies. I think they served more as a "proof of concept" than a refined
>design.
>
>I recall seeing, possibly in Ham Radio magazine, how modern circuit analysis
>could be used to design a much better filter than what the 1950's engineers
>could do.
>
>73,
>-Pete
>WB2QLL
>petef@sprynet.com
>
>
>

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: Bill Sorsby <bill.sorsby@dlep1.itg.ti.com>
Subject: Re: Pacemaker Sideband Suppression Query
Message-ID: <199605030309.WAA28552@dlep1.itg.ti.com>

At 06:31 PM 5/2/96 -0500, Dave Thompson wrote:

>One reason that The Pacemeker was dropped was that the "alternate" sideband
>suppression was below par.

<snip>

>I have both the B&W 51SB and the SB-10 in my "oldies" shack. The measured
>difference in sideband suppression is just over 20DB in favor of the B&W. I
>have not attempted to do anything to either unit but set for max
>suppression.

Thanks for the response, Dave. I've received about a half dozen responses
from "former" Pacemaker owners, but none from current Pacemaker owners.

Perhaps that in itself says something. None of the responses were encouraging. All indicated instability with carrier suppression, although none of the former owners had bothered to measure alternate sideband suppression.

Yes, my Pacemaker has carrier suppression instability as well, but in terms of interference I was more concerned with the alternate sideband suppression. Interestingly, the alternate sideband suppression in my Pacemaker appears to be stable even when the carrier suppression isn't. I was just monitoring it over short time periods though. Perhaps in the long term it wouldn't be. Kinda funny the way the carrier suppression drifts, just supplying some carrier insertion into the balanced modulator for a few seconds is sufficient to significantly change the carrier suppression for ten or fifteen seconds. That indicates something changing value as the result of increased signal level to me, perhaps a resistor or potentiometer, or then again, perhaps something more insidious like the balanced modulator output tank circuit.

I don't know how much further I'll pursue the Pacemaker woes, because it certainly sounds like my Pacemaker is operating about normal for a Pacemaker.

I've got an Apache/SB-10 combo I'll work on in the near future, so I'm disappointed to hear you remarks on the SB-10, Dave. Not altogether surprised though, since the design of the SB-10 is in some respects similar to the Pacemaker

Thanks to all for the Pacemaker responses.

Regards,
Bill Sorsby, N5BU   bill.sorsby@dlep1.itg.ti.com

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "Serafin G. Menocal" <serf@bellcore.com>
Subject: Persistant hum
Message-ID: <199605031317.JAA13792@mailee.bellcore.com>

Hi gang:

I could use some advise on trying to eliminate some hum on an old Hammarlund HQ-215 I picked up a week back. Even though it's solid state, the construction is tank-like at 25 lbs, and the vintage put it in the boatanchor class... Anyway, the workmanship is a joy to behold, and it was Hammarlund's last stand - Collins mechanical filters and all...

Anyway, the receiver has a low level hum that's quite
annoying. I've replaced the filter capacitor at the bridge
rectifier (1000uf), and another downstream capacitor at
the 9V zener (640uf) with no success. When I replace these
with values 4X the original it makes no difference. Driving
the HQQ-215 through the external 12V connection it's
as quiet as a rock.   It appears to be the AC supply that's
causing the problem...

Questions: Has anybody had any problem like this with
Hammarlunds or other rcvrs? Is there any particular
component that's prone to failure here? What's the next
likely place to look for trouble?

Advise appreciated!

Serf

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: Steve Ellington <n4lq@iglou.com>
Subject: Re: Persistant hum
Message-ID: <Pine.GSO.3.92.960503103143.9772A-100000@iglou2>

>
> I could use some advise on trying to eliminate some hum
> on an old Hammarlund HQ-215 I picked up a week back.
> Even though it's solid state, the construction is tank-like

HMMMMM. Well, you don't have to check the tubes for filament to cathode
shorts! I think it's time to get out the scope. Does the hum level vary
with volume control adjustment? If not, you have eliminated everything
ahead of the detector.

Steve Ellington N4LQ@IGLOU.COM Louisville, Ky

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: Richard Post <POST@ouvaxa.cats.ohiou.edu>
Subject: RE: Persistant hum
Message-ID: <A2984ZWHBHTMXN*/R=OUVAXA/R=A1/U=POST/@MHS>

Serf,

Since the hum clears up with an external 12 volt supply, the following are possible hum sources.
Assuming the hum is in the speaker, not just headphones, things I would check include an open or leaky diode in your bridge or full wave power diode pair, (or even one side of the power trans secondary, assuming center tapped, for open)(results in half wave rectification). If OK, does switching the AC plug around affect the hum level? Any leakage between the chassis and AC from the line capacitor? If the hum is headphones only, what is the impedance of your headphones?

Good luck and let us know what you find.

Rich

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: Henry van Cleef <vancleef@bga.com>
Subject: Re: Persistant hum
Message-ID: <199605031842.NAA18202@zoom.bga.com>

As Serafin G. Menocal said

>
> Anyway, the receiver has a low level hum that's quite
> annoying. I've replaced the filter capacitor at the bridge
> rectifier (1000uf), and another downstream capacitor at
> the 9V zener (640uf) with no success. When I replace these
> with values 4X the original it makes no difference. Driving
> the HQQ-215 through the external 12V connection it's
> as quiet as a rock.   It appears to be the AC supply that's
> causing the problem...
>

The tool I find most valuable for chasing hum is an oscilloscope with a high gain preamp. I also use a capacitance box with probes. First question is to determine whether the hum is 60 Hz. or 120 Hz.

Take a look at the waveshape coming out of the bridge rectifier. It should look more-or-less like a reverse sawtooth, and the two halves of the 120 Hz. should be approximately symmetrical.
If both halves of the 120 Hz wave about about equal, and your hum is 60 Hz., you are getting hum pickup somewhere, not bad power supply filtering.

One place to look carefully is the grounding setup in the set. Almost all receivers use the chassis as a current-carrying leg in the power supplies. One real source of trouble here is terminal strips and ground lugs attached physically to the chassis, particularly if rivets were used or the chassis is aluminum. There are several solutions for poor grounding here, depending on the style of construction and your approach to things. One fairly sure fix in the steel-aluminum situation is to bond the ground points with bonding wires. Other fixes are to use a heavy soldering iron on steel-on-steel construction to solder over the rivets or to drill out the rivets, clean everything up, and reassemble with 6-32 x 1/4 binder head screws and Keps nuts (the Tektronix style of original construction). Tektronix and HP learned the hard way that the best construction, particularly if aluminum is involved, is to bond the grounds with separate wires. Some work with clip leads as temporary bonds should help trouble-shooting.

Check the routing of any AC wiring in the set. All AC wiring should be done with twisted pair wiring, to cancel out magnetic fields, and routed away from any points that might pick up hum through either magnetic or capacitive coupling.

If you are hearing 60 Hz in the audio with no signal, start scoping at the output stage, working backward, output-input-output-input (yeah, look on both sides of a coupling cap). To "kill" signal input use a capacitor on a clip lead, running to a good ground. 1 mfd. on a clip lead works well for this. Working with transistor stuff, make sure to discharge that cap between tests, so that you don't zap a transistor. Most of them will only handle 5 volts reverse bias on the emitter-base junction, and a 1 mike cap charged up to 10 volts may have enough joules to damage the junction.

If you are hearing 60 Hz. only when you have signal, the hum is coming in before the audio and modulating either the IF or RF signals. Use a signal generator to inject IF and RF signals at the appropriate frequencies. Walk backward through the circuits, grounding outputs and inputs and injecting signal into each stage. You can monitor the AM detector output for 60 Hz. as you work backward through the set.

Since this is a transistorized setup, I haven't mentioned one very common source of hum in tube equipment, which is heater-cathode leakage. You can generally see this on a scope---60 Hz. AC on the cathode of the affected stage. One good modification to consider in high-gain equipment is to convert the high-gain stage heaters to DC. One of the little 50 volt 4 amp rectifiers will handle 3 or 4 300 ma. tubes nicely, and you don't have to hang much filtering (470 mikes is fine) on the output to get a 90% reduction in ripple to the heaters. While this circuit will try to boost the voltage to peak vs. RMS, there are generally enough losses between the 1 volt nominal drop in the rectifier and transformer winding resistance that the voltage ends up pretty close to 6.3. If you can, elevate this about 10 volts DC.

While we generally don't talk about transistorized stuff here, I think a few notes on hybrid and early transistor setups are worthwhile, because we get to work with them when looking at stuff built in the 1955-70 period, and some of the designs were done by people who were not too sure what they were doing.

First of all, you're likely to run across both positive and negative Vcc supplies, and may have 3 or more legs to the power supply, one of which is nominal "ground," but circuitry connected between any two legs. Secondly, many of these supplies have series regulators in them made up of discrete components. If you see a 2N3053 transistor in a sixties unit, you are generally looking at a regulator pass transistor, and the performance of these was nothing to write home about. Also, I've seen some astounding configurations of filtering around such circuits. If you've got an old pass regulator that is sick, consider replacing it with one of the popular regulator IC's. The LM317T can be run with almost any reference voltage supplied by a zener circuit. But if the voltage is one of the standard voltages, an LM78xxT regulator includes its own reference voltage. The "xx" is the voltage (i.e., LM7818T is 18 volts). The "T" means "TO-220," a package that was not introduced until sometime in the sixties. The 78-type regulator is very easy to install, because its tab (with the hole in it) is "ground" and you can just attach it to the chassis with a 6-32 screw at a suitable cool spot and keep the thing nice and cool. My preference for wiring in one of these is:

Bridge rectifier->filter cap->series dissipation resistor->regulator input terminal with 1 mfd. to ground (parasitic suppression required). I put a second filter cap across the regulator output. One thing I do NOT do is feed the regulator from a big barrel cap, as any transient overloads on the regulator output generally mean goodbye regulator if you do this. Select a series resistor that will allow about +3 volts over the regulated output to appear on the regulator input at maximum load. Generally a 10W cement resistor is fine here---it will get hot, but the regulator will stay nice and cool, and the resistor will give short-circuit protection. However, these regulators will bay like coyotes on a full moon if you don't hang about a mike across the input.

You can increase the current-handling capability by shunting the regulator with a suitable resistor, but make sure you have enough ohms so that the regulator is controlling the voltage on minimum load.

If you are replacing a TO-3 pass transistor like a 2N3055, just pick the TO-3 version of the integrated regulator and use the old mount.

All of this may sound like work, but I've found that some scoping and work with clip leads and caps to AC-ground signal injection is fairly quick and will find single faults pretty quickly. Once again, I'll emphasize the need to walk through the grounding scheme and check the bonding, because this is a very common fault area. If the power supplies are clean and the hum seems to be coming from everywhere, this is the first place to look.

--
****
Hank van Cleef vancleef@bga.com vancleef@tmn.com
****

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: Herb Holeman <choleman@ptialaska.net>
Subject: Phasitron: Fond remembrances.....
Message-ID: <199605031802.KAA01812@ptialaska.net>

....or where were you in '62?

On 30 Apr 1996 Barry L. Ornitz wrote:

>>For those not familiar with this technology, this very unusual (and
>>likely very RARE) tube was used in early FM transmitters. A discussion
>>of its operation can be found in Seely and Terman's "Electron Tube
>>Circuits" of 1950. Some other strange tubes were also developed to
>>produce FM. RCA had one design that used an electrostatically deflected
>>tube similar to a CRT that had a conductive spiral trace instead of a
>>phosphor screen. This spiral trace was part of an oscillator circuit and
>>where the beam hit the trace determined the phase of the gun current.
>>
>>I believe most of these special tubes and circuits were designed to
>>bypass Edwin H. Armstrong's patents. Remember that in the early days,
>>generating FM was not really a problem but maintaining the carrier
>>frequency stability was difficult. Thus many schemes started out at
>>relatively low frequencies and were multiplied many times to get the
>>final carrier frequency and deviation.

(snip)

Yes the phasitron was indeed used in early FM transmitters, and I had the pleasure of working on one of them in 1962. I was a student at the University of Alaska, Fairbanks at the time and had gotten a First Class Radiotelephone License a year earlier. It was a beautiful warm interior Alaska summer, and the University had just received a construction permit for 1000 Watts FM on 104.9 Mc and would be the first non-commercial FM in Aaska, and if my memory is accurate, only the second FM in the whole state--the first was a commercial FM in Anchorage. At that time the FCC licensed broadcast FM's by transmitter output power rather than effective radiated power as they do now (taking into account antenna gain.)

Back then the gov't/military had control of the spectrum between 75-100 MC in Alaska, so all FM broadcasting had to take place above 100 Mc instead of in the 88-92 MC educational broadcasting segment. This turned out to be an Excedrin headache for me because the transmitter that I was trying to get running was donated by the University of Washington, whose frequency was on the low end of the FM band. My chore was to retune the transmitter to the new frequency and get it on the air by autumn.

This transmitter was built by GE, probably just after WW 2 ended, and of course used the infamous phasitron. The block diagram of the transmitter was a little unusual--the phasitron operated around 200 KC but in order to get enough phase deviation its output was multiplied up to a few MC, then heterodyned back down to the low kilocycle range where it was multiplied again up to the station operating frequency. My recollection is that the multiplication factor was X432 from the crystal freq. The transmitter manual explained the operation of the phasitron in several paragraphs. The explanation used the analogy of a three phase motor, where an electron "wheel" rotated at the crystal freq. rate, and that this rotating wheel of electrons was phase modulated by the audio frequency. And oh yes, the tube was surrounded by a collection of coil windings to achieve the rotation effect. This was designed long before stereo was even available on LP's, but would handle the baseband audio range of 50 cps to 15 kc! After rewinding some of the coils in the transmitter, the alignment went pretty much per the book. The instructions were kind of hazy, but I took a shortcut and simply aligned the phasitron stage for minimum distortion (as seen on an oscilloscope) at 50 cps audio freq. and the thing sounded really good on the air. Next, I had to get the VSWR down on the antenna, but that was another story.

KUAC-FM used the phasitron GE rig for at least five years after that, but much later one of the operators told me that first one of the phasitron tubes failed; the only spare was installed, but no replacements could be located--they didn't have the BA list to fall back on!! Eventually the spare tube developed an intermittent filament, and the morning operator had to tap on the tube with a pencil as a matter of course to get the filament to come up so the station could begin its broadcast day.

I remember thinking at the time I aligned the phasitron that this sure was a difficult method of generating FM--why couldn't they come up with something a little more straightforward? An easy question to raise from my 1960's vantage point, but I suspect that Barry's theory about patent infringement may be right on track. At least the GE phasitron scheme was inherently frequency stable, unlike some of the other designs of the post WW2 period.

Future installment--does anyone remember working on an RCA TV transmitter that used a two-phase motor to tune a capacitor to keep the aural frequency within tolerance??? This FM generation scheme was *not* inherently frequency stable, but the transmitter was all hollow state, of course!

When listening to KUAC-FM, I sometimes reflected on the image of a rotating wheel of electrons, its phase changing a few degrees in time with the music.

..de Herb Holeman, WL7BIL
Juneau, Alaska
choleman@ptialaska.net

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: KWDouglas@aol.com
Subject: Re: Polar Relays
Message-ID: <960503085613_286265506@emout17.mail.aol.com>

>Some of the feedback regarding RTTY loops and polar relays has uncovered
>some memory cells which have been dormant for many years. At my first job
>with Westinghouse in the mid 1960's, it seems that I assembled polar relays

Uncovering dormant memory cells is an understatement! It is vaguely recalled that the Indiana State Police used polar relays in their statewide TTY circuit in the 60's. But when the siren song of a clattering Model 15 beckoned me into ham RTTY in the late 60's-70's, the polar relay had been eliminated. It could be, as others have noted, somewhat of a stumbling block.

For receiving, the printer selector magnets liked to see the previously mentioned 60ma square wave. The last firebottle in the TU (receiving converter) did the necessary switching of the 100VDC+ loop current. A big adjustable power resistor was somewhere in the loop to limit the current to about 60ma. I used an ex-Navy RBC receiver and ex-Navy Model?? discriminator type receive converter that sampled the RBC IF string. Loop current was provided by the loop power supply that came with the Model 15 machine.

The keyboard contacts were also in the loop. So when transmitting, the printer also displayed what was being typed. A voltage divider was placed in parallel with the big adjustable power resistor. This provided a low voltage "replica" of the "switched square wave" voltage drop across the big power resistor. (This switching of the loop current being provided by the
firebottle in the converter when receiving, by the keyboard when transmitting).

This low voltage (forgive me, probably TTL level, or less) squarewave was funneled to the VFO modification on a pair of wires. The modification consisted of a simple rf choke, a diode, and a small value adjustable capacitor. It is all hazy now but the TTY signal voltage was just switching the diode off and on which was in turn connecting the cap into and out of the VFO circuit. The cap was adjusted to shift the VFO frequency the standard RTTY shift of 850 Hz (oooops, cycles).

This circuit was circulated in publications of that era (QST, RTTY Journal, RTTY Handbook, etc, I can't remember). The only drawback was that for large frequency excursions of the VFO up and down the band, the amount of RTTY shift would change. But we didn't worry about that in those days and generally the RTTY action was concentrated around a tight group of frequencies, anyway.

This circuit was used in a TCS transmitter (ex-Navy, naturally) for the whole era that I was RTTY active. Never had a moment's problem with it and was relieved of the agony of having to investigate the inner workings and hidden mechanisms of the mysterious polar relay. (Now, if I can just find my oil can filled with special Teletype Corporation lubricant and drag this Model 28 into the shack......)!

Kent, K9JCR
KWDouglas@aol.com

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: Joe_Wilkowski@mc.xerox.com (Wilkowski,Joe)
Subject: Re: Polar Relays
Message-ID: <"<CE308A3181B7677C>CE308A3181B7677C@X-MC-0819-MS2.XEROX"@-SMF->

>>From: boatanchors@theporch.com
>>To: Multiple recipients of list
>>Cc: KWDouglas@aol.com
>>Subject: Re: Polar Relays
>>Date: Friday, May 03, 1996 5:57AM
>>
>>>Some of the feedback regarding RTTY loops and polar relays has uncovered
>>>some memory cells which have been dormant for many years. At my first job
>>>with Westinghouse in the mid 1960's, it seems that I assembled polar relays
>>>>>>CLIP>>>>>>>>>>>>>>.

For those of you who still like to hear the selector magnets clack on a MOD 15, 19 ,28 or the big Kleinschimdt and /or the melodious sound of a reperf running tape but all you have is a low voltage TU output to work with, try this simple inexpensive way to key your high voltage 60ma loop.

The next swap and shop (or the Shack) look around for a SPDT (single pole double throw) 12v reed relay capable of handling 60 ma (actually I have used miniature reed relays in this application with good success) and use it as follows:

If the TU has a TTL output (capable of only sinking a small amount of current) use a common NPN signal transistor like a 2N3904 or similar to key the relay. This is how:

Connect a 12 volt source to One end of the reed relay coil. Connect the other end of the reed coil to the collector of the transistor. Connect the emitter of the transistor to the DC return line of the 12 V source. Connect the base of the transistor through a 2k 1/4 watt resistor to the TU low voltage key line. Connect one end of your high voltage loop to the common terminal of the relay and the other end to the NO (normally open) terminal. And your in business all most.

The teletype loop normally in a quiescent state (not printing) has 60 ma of current flowing in the circuit. When you send a character by hitting a key on the keyboard or the terminal unit is in a receive mode you effectively turn off the current in the loop by opening it up. It is this rapid turning on and off of the loop current in a specified amount of time that pulses the selector magnets of the machine in the proper sequence to print the character desired.

So lets analyze the circuit above. With no incoming data the loop needs to be closed with current flowing waiting for the character to be printed. The TU would have a Logical High at its output (5v) in a MARK condition. This high would forward bias the transistor and cause the reed relay to energize closing the loop circuit and supplying 60 ma of current to the selector magnets through the now closed NO contact of the reed. When the character begins to be sent the TU output would go LOW approximately (0v) turning off the transistor and opening the loop for a brief amount of time until the next transition to a HIGH at which time the loop again closes. This all happens very fast but the result is the keying of the high voltage loop in the proper sequence to print the character.

This all assumes the TU is at a logical HIGH in a mark condition. If it is not and a LOW is the MARK output of the TU just move the loop connection from the NO terminal to the NC (normally closed).

Enjoy...

/joe

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "Randy Zelick" <RANDY@sbii.sb2.pdx.edu>
Subject: Re: R-392/URR, anyone?
Message-ID: <11A7C187442@sbii.sb2.pdx.edu>

Hi R392 fanatics,

I too really like my R392 but as I have mentioned before on this net, beware of putative intermod GRUNGE.

My 392, carefully aligned with good tubes, is often un-useable due to broadcast station modulated hash spanning 100's of kHz on various bands (but almost always including 80M and 40M!). The best I can determine, despite the selective front end preselector, the RF stages and/or mixer are being overdriven by strong out-of-band signals.

I live almost line-of-site and about 5 airline miles from the largest nest of Portland's broadcast towers in the "west hills", but the kind of grunge I get on the 392 would make you think I was right under the towers.

Other receivers at the same QTH and with the same antenna(s) have no problem - these include R390, 390A, 51S-1, FRR-59, 2B, RBB and a variety of others previously tested but no longer extant in the shack.

So hopefully others eager to use a 392 will not be similarly afflicted.

Cheers,

=Randy=

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "Thomas A. Adams" <103360.2133@CompuServe.COM>
Subject: Re. XYL / The Rack
Message-ID: <960502181800_103360.2133_JHL120-1@CompuServe.COM>

Hello Bobbi.

Re. computer RFI:

Take it from somebody who's been there; a decent outdoor antenna WILL help the situation greatly! There are other things you can do to help out tho.

If the OM hasn't got one yet, a GOOD power line conditioner / control panel (I'd recommend the Tripp-Lite) for the computer will help immensely, and if you get it for him as a birthday present or whatever you'll make a lot of brownie points at the same time! I'm convinced that most of the electromagnetic crap from a PC gets into radios via the AC line rather than by radiation, and as it happens, the same kinda filtering / conditioning goodies that eat power line glitches (which kill the computer) are also excellent for reducing the RF that the computer puts back into the line (which kills the radio)! Everybody wins.

I'm well known for using overkill and brute force tactics here, so the OL's favorite machine (a tricked out 486DX4 @ 100 MHz) not only has a power conditioner / filter, but a small UPS (with even MORE filtering)! The happy result is blessed silence on the ham bands, even tho the 160 metre antenna passes almost directly over the machine!

Also, I'd recommend that when you get the antenna up you go with coax feed. Bringing a single wire or open wire feeder into the shack (ie, anywhere near the computer) is the kiss of death.

BTW, among the other things I've done during my sabbatical from BOATANCHORS is fool around a lot with computers, mostly older iron.

Unless a ham is totally into BA gear at the exclusion of everything else, a computer of some sort is just about a necessity in the shack these days. In terms of RFI, bringing a computer into the shack is like parking your pet timberwolf in the sheep pen, but I made a couple of discoveries that make the whole thing a bit easier to live with.

In my shack, not too much computing horsepower is really needed. An old 8088 or 286 machine is MORE than adequate.

I've lately gotten intrigued by the early portable (ie, "luggable") machines, and I discovered that the Compaq luggables (8088 and 286 flavors) are VIRTUALLY RF NOISE FREE! Believe it or not, I can use one as an RS-232 controller for my Drake R8 or Icom R-7000 without ANY interference, EVEN WITH THE RADIO SITTING ON TOP OF THE COMPUTER, AND SHARING THE SAME AC POWER STRIP! The Compaq folks shielded and filtered the hell outa these beasts. The best part is that these days you can find 'em for five or ten bucks, in working condition.

The folks at the Compaq factory wouldn't recognize my 286 luggable any more. You don't see too many of 'em with a 1 gig hard drive, a Sound Blaster card (to be used for weather satellite facsimile demodulation), the optional coprocessor (of course!), an old AboveBoard RAM card, and a modified Hercules graphics card! Not to mention extra serial, printer, and joystick ports that came on the hard drive's IDE controller card! This thing is turning into SUPERLUGGABLE, the (semi)portable hot rod!

Anybody on BOATANCHORS know where I can get a 9" color monitor to shoehorn into this beast? TTL / EGA would be nice, but I can live with an RGB or composite inputs.

73's,

Tom, K9TA

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "F r6fqHo!ht" <75121.100@CompuServe.COM>
Subject: Tripplet
Message-ID: <960502225253_75121.100_FHI49-2@CompuServe.COM>

The Tripplet books are spoken for.

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: World's Simplest Field Strength Meter
Message-ID: <9605031744.AA102298@csemail.cropsci.ncsu.edu>

Another treasure surfaced from the bilges.....

WORLD'S SIMPLEST FIELD STRENGTH METER

(Note: the source for this was an obscure article in 73 magazine, some years back, but I can't find the original citation for it.)

Have you ever needed to tune up your OT rig and not been able to use a normal ``SWR meter''? After all, OT rigs never knew what SWR was anyway. It is essentially a null item on OT rigs fed with tuned lines or no lines. My OM, a sparks since the earliest days, always tuned with a field strength meter, even when running commercial gear. It worked for 70 years for him, and has for 25 years for me.

The following circuit is ascribed to Jo Jennings/W6EI (SK). It was written up for 73 in a short half page article by Lloyd M. Jones/W6DOB. I have been teaching all my classes in Ham Radio, using this device for instructional purposes, since it really, really works! Even newcomers can get a grip on it and make it work, the first time. One does not even need a case for the meter.

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                      +-------- METER --------+
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73/ZUT DE NA4G/Bob UP

From boatanchors@theporch.com Fri May 3 14:40:11 1996
From: n4lq@iglou.com (Steve Ellington)
Subject: Re: World's Simplest Field Strength Meter
Message-ID: <m0uFPb7-00037GC@mail.iglou.com>

Actually, that is the world's second simplest. Here is the one I use.
I use the meter movement from an old vom. It's very sensitive.

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>                    WORLD'S SIMPLEST FIELD STRENGTH METER
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Steve Ellington N4LQ@iglou.com



From boatanchors@theporch.com  Fri May  3 14:40:11 1996
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: World's Simplest Field Strength Meter
Message-ID: <9605031928.AA102574@csemail.cropsci.ncsu.edu>

>
> Actually, that is the world's second simplest. Here is the one I use.
> I use the meter movement from an old vom. It's very sensitive.

Well, I prefer the dual diode version, since it is a voltage doubler
circuit.....(:+}}......  ahhh, wat fun be xtal radios!  Anyone for
a voltage quadrupler circuit?

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> >
> >   73
> Steve Ellington N4LQ@iglou.com

73/ZUT DE NA4G/Bob

From boatanchors@theporch.com Fri May 3 11:17:01 1996
From: "F r6fqHo!ht" <75121.100@CompuServe.COM>
Subject: Xtal filters for 10.7
Message-ID: <960503052926_75121.100_FHI34-2@CompuServe.COM>

Hello all again!

I have a few IF crystal filters at a center freq of 10.7 mhz. They are about twice the size of the Collins filters. In other words, they are 1/2" high, 1" wide and 2" long. I don't know what the response is or the steepness of the skirts but the price is right. I think they should be worth about $20.00? Anyone have any use for these in your project(s) send me a message.

Perhaps you prefer a trade instead of direct purchase? I could use the following 6688, 6BE6, 6BF5 tubes for my McKay 3010 or some 6EA8s for the 51S-1 or if I feel motivated some 6GK6s, 6JH8 and 6LQ6s 12BA6, 12BE6 and 12BZ6 for the SWAN 500C. These are just trading suggestions.

The manufacturer is PIEZO Technology inc. and the unit is in a sealed metal can with 3 pins on bottom. INPUT, COMMON and OUTPUT. There are also 2 mounting threaded studs and are about a 4-40 size.

Talk to me!!

Regards from Honolulu, Raymond Cote
75121.100@compuserve.com